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September 8, 2004

Marlene H. Dortch, Secretary
Federal Communications Commission
Washington, DC 20554

Re: Report of *Ex Parte* Communications
MM Docket No. 99-325
Oral and Written

Dear Ms. Dortch:

Pursuant to Section 1.1206(a)(2) of the Commission's Rules, this is to report that an oral *ex parte* meeting was held on September 8, 2004, attended by the following persons:

Representing **The Livingston Radio Company** (WHMI-FM, Howell, Michigan)
Gregory J. Jablonski, President
Peter Tannenwald, Irwin, Campbell & Tannenwald, P.C., Counsel to WHMI-FM

For the Commission's **Media Bureau**
Steven Broeckaert
Susan N. Crawford
Ann Gallagher
Ben Golant

Later in the day, additional brief oral presentations were made to two more representatives of the **Media Bureau**:
Roy J. Stewart
Peter H. Doyle

Attached are three **written** documents that were left with the Commission's participants at the meetings:

1. Summary of the oral presentation
2. Engineering Exhibits
3. Copy of letter to the editor of *RadioWorld*

Respectfully submitted,

Peter Tannenwald
Counsel for The Livingston Radio Company

Attachments
cc: (w/att) (all *via* e-mail)
All Meeting Participants
Theodore D. Frank, Esq.
David M. Silverman, Esq.

The Livingston Radio Company
WHMI-FM, Howell, Michigan

Ex Parte Presentation
September 8, 2004

In the Matter of Digital Audio Broadcast systems and
Their Impact on the Terrestrial Radio Broadcast Services

MB Docket No. 99-235

Attendees:
Gregory Jablonski, President, The Livingston Radio Company, licensee of WHMI-FM
Peter Tannenwald, Irwin, Campbell & Tannenwald, P.C., Counsel to WHMI-FM

Statement of the problem: The IBOC FM digital system intentionally radiates carriers directly on the upper and lower first-adjacent channels to the station's main channel analog carrier. The Commission has decided that the resulting interference to adjacent-channel stations will be tolerable, based on the assumption that the power of the interfering digital signal will be 20 dB below the power of the transmitting station's analog signal. That assumption, whatever its validity may be in the normal situation, is completely invalid when a station initiates digital operation with greater power than its class limit, and its digital signal interferes with an analog station that is restricted to the normal power limit. The anticipated D/U ratio that is predicted to exist based on normal power/height limits, mileage separations, and analog protection under Section 73.215 is exceeded significantly when one station exceeds normal power limits and the other does not. The result is highly destructive interference to the analog signal of the adjacent channel normal powered station.[1]

WHMI-FM's situation: WHMI-FM operates on channel 228A at Howell, Michigan, with 5.2 kW ERP at an antenna height of 108 meters HAAT (equivalent to the normal Class A maximum of 6 kW ERP at 100 meters). WBCT(FM), Grand Rapids, Michigan, operates on first-adjacent channel 239B. WBCT is grandfathered with 320 kW ERP at 238 meters HAAT rather than the normal 50 kW/150 meter limit for its class. It has both more power and more height than the Class B limits and operates at 12 dB above the normal Class B limit. If WBCT is permitted to transmit digital signals on WHMI-FM's channel 228 that are 20 dB below 320 kW instead of 20 dB below 50 kW, all assumptions as to WHMI-FM's ability to survive the additional interference will go out the window. In fact, the interference that WHMI-FM already experiences only 3½ miles from its transmitter, particularly under certain atmospheric conditions, will reach to and beyond

[1] The problem also exists for second-adjacent channel stations, many of which (like KJLH) are short-spaced. Interference from a super-powered station that is second-adjacent in the analog environment becomes first-adjacent in the digital environment. That problem is serious, although not as severe as the co-channel interference that digital signals will cause to first-adjacent channel stations.

its transmitter site and will include all of WHMI-FM's community of license (see attached map). In other words, the impact of on WHMI-FM of WBCT's lower power co-channel digital signal will be far worse than the impact of its high power adjacent-channel analog system, keeping in mind that no receiver, no matter how selective, can filter out co-channel interference.

Scope of the Problem: There are 68 super powered stations, defining that term as a station whose 60 dBu contour extends the reference distance by more than 10%. Thus only about 1% of the 6,218 authorized commercial FM stations are involved. These stations are all Class B stations and are all located in the Great Lakes-Northeast-Mid Atlantic area and California areas, which are adequately served by a plethora of stations.[2]

iBiquity recognizes the problem and has offered no solution. The report of the DAB Subcommittee of the NRSC (excerpt attached) shows that the IBOC digital signal occupies the first adjacent channel and observes that the greatest compatibility challenge is first-adjacent channel interference. Livingston called the super power issue to iBiquity's attention early on. iBiquity first expressed considerable interest in testing but later became strangely silent, apparently recognizing that the problem is severe and there is no solution except to reduce the power of super power stations, a solution that might generate opposition from large customers of iBiquity.

Adverse consequences of ignoring the problem. WHMI-FM is the only commercial FM station licensed to any community in Livingston County. Although only a Class A station, it has a news staff of five persons, features significant local news and information, and is no. 1 rated in the county despite competition from signals from large market stations with far bigger budgets. In contrast, WBCT is two markets away from Livingston County. It has no incentive to provide local service to Livingston County. To destroy WHMI-FM's signal in its own community would cut counter to the values placed on localism and the governmental policy of supporting the development of small businesses.

Public interest considerations. Allowing super power stations like WBCT to destroy adjacent-channel stations like WHMI-FM is not in the public interest and cannot be justified. Whatever justification may have existed for grandfathering super power stations in the early 1960s no longer prevails. There are no underserved area issues; the

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[2] The problem does not exist in the noncommercial band or with respect to Section 73.215 stations, all of which should have been authorized and should themselves be protected based on interference calculations. These stations, regardless of their power and height, should not have a significantly different effect on adjacent channel stations from that of a class limit commercial station operating under the mileage separation requirements of Section 73.207. The reply comments of KQED-FM thus need not be of concern, because KQED-FM presumably meets interference requirements to other stations, and Livingston's proposal would not restrict KQED-FM's digital operation.

geographic areas involved are well served. Whatever expectations the licensees may have had 40 years ago should not be extended into the new digital environment, where everyone should start with the same ground rules.

Proposed Solution. Allowing super power grandfathered stations to transmit digital power 20 dB down from their grandfathered power is unworkable, as it will seriously cripple, if not destroy, adjacent-channel stations. A reduction of digital power alone, while leaving analog power undisturbed, is apparently not a viable approach, because the ability of a single station's own analog and digital signals to co-exist depends on the 20 dB relationship. Therefore, the only feasible solution is to give grandfathered stations a choice of reducing analog power to the class limit (taking antenna height into account) at the time digital operation is initiated or else deferring the initiation of digital operation and maintaining their grandfathered analog power level. Grandfathered stations should be given a choice of which path to take. At the end of the transition, when analog operation ends, all stations should be required to abide by the same rules, and grandfathering should end.

SUMMARY OF ENGINEERING EXHIBITS
PREPARED FOR WHMI-FM
HOWELL, MICHIGAN

1. Distribution of Grandfathered Superpowered FM Stations in CONUS – A study was conducted using the FCC CDBS engineering database to identify grandfathered superpowered FM stations in the continental United States. Only stations in the non-reserved (commercial) band were employed. The analysis was based on the effective radiated power and antenna height above average terrain. A station was defined as superpowered if its calculated 60 dBu contour distance exceeded that for a reference station of the same class by more than 10%. For example, for Class B stations, if the combination of effective radiated power and antenna height above average terrain produced a predicted 60 dBu contour exceeding (52.0 km x 1.10 =) 57.2 km, it would fall into the superpowered category.

2. Grandfathered Superpowered FM Exceeding 10% of Class Contour Distance – Tabulation of stations identified above and shown in the map.

3. Report on Evaluation of the ibiquity Digital Corporation IBOC System – Excerpt Page 14 illustrates the way the digital sideband of IBOC overlaps 1st adjacent analog channel. Excerpt Page 25 at Figure 10 clearly illustrates the significant interference effect that IBOC will have on analog service in a moderate interference condition. The analysis indicates a loss of a grade of service in many cases. For example, situations now experiencing "good" quality could drop to "fair to poor" quality with IBOC turned on. Excerpt Page 26 at paragraph 1 contains language clearly acknowledging the significant 1st adjacent interference expected with IBOC.

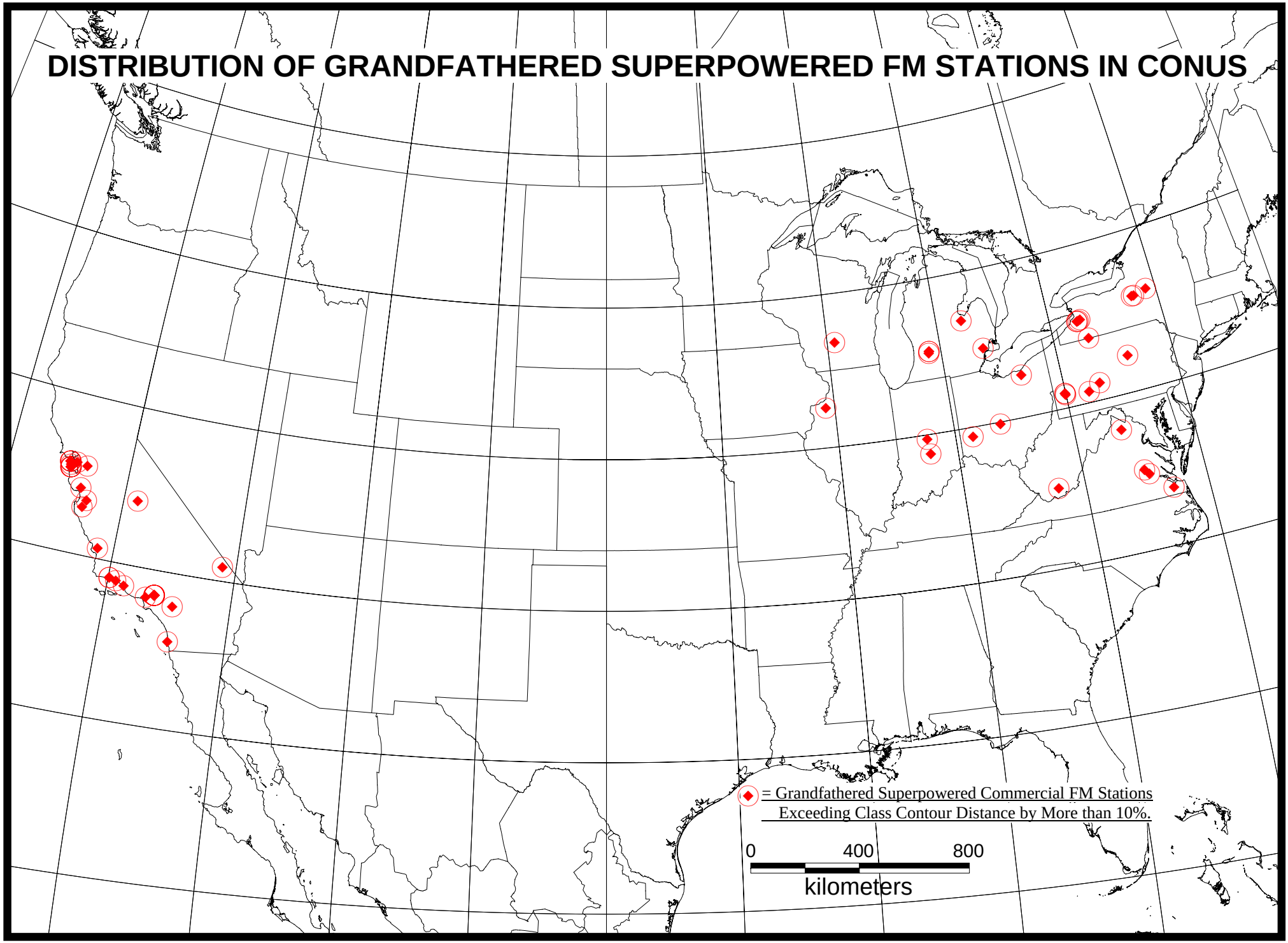
4. Predicted Coverage Contours – This map illustrates the locations of WHMI-FM and superpowered station WBCT; the protected contours of WHMI-FM and WBCT; and the estimated interfering contours for WBCT under certain assumptions. A 48 dBu, f(50,10) level was estimated for interference from a hybrid IBOC to a protected 60 dBu, f(50,50) protected service contour.

Louis Robert du Treil, Jr., P.E.

du Treil, Lundin & Rackley, Inc.
201 Fletcher Ave.
Sarasota, Florida 34237

September 2, 2004

DISTRIBUTION OF GRANDFATHERED SUPERPOWERED FM STATIONS IN CONUS



GRANDFATHERED SUPERPOWERED FM EXCEEDING 10% OF CLASS CONTOUR DISTANCE

Call Sign	City	State	Channel	Clas	ERP	HAAT
KPFA	BERKELEY	CA	231	B	59.0	405
KSKS	FRESNO	CA	229	B	68.0	580
KSCA	GLENDALE	CA	270	B	5.0	863
KHHT	LOS ANGELES	CA	222	B	42.0	887
KCBS-F	LOS ANGELES	CA	226	B	29.0	1,056
KTWV	LOS ANGELES	CA	234	B	52.0	863
KLOS	LOS ANGELES	CA	238	B	61.0	954
KYSR	LOS ANGELES	CA	254	B	75.0	360
KKBT	LOS ANGELES	CA	262	B	5.0	916
KRTH-F	LOS ANGELES	CA	266	B	51.0	955
KIIS-F	LOS ANGELES	CA	274	B	8.0	902
KOST	LOS ANGELES	CA	278	B	13.0	949
KBIG-F	LOS ANGELES	CA	282	B	84.0	882
KMZT-F	LOS ANGELES	CA	286	B	18.0	880
KLVE	LOS ANGELES	CA	298	B	30.0	914
KWAV	MONTEREY	CA	245	B	18.0	747
KHYZ	MOUNTAIN PASS	CA	259	B	8.0	551
KDON-F	SALINAS	CA	273	B	19.0	692
KOLA	SAN BERNARDINO	CA	260	B	30.0	507
KMYI	SAN DIEGO	CA	231	B	100.0	188
KYLD	SAN FRANCISCO	CA	235	B	30.0	369
KOIT-F	SAN FRANCISCO	CA	243	B	24.0	480
KLLC	SAN FRANCISCO	CA	247	B	82.0	309
KISQ	SAN FRANCISCO	CA	251	B	75.0	310
KFRC-F	SAN FRANCISCO	CA	259	B	40.0	396
KIOI	SAN FRANCISCO	CA	267	B	125.0	354
KDFC-F	SAN FRANCISCO	CA	271	B	33.0	319
KITS	SAN FRANCISCO	CA	287	B	15.0	366
KMEL	SAN FRANCISCO	CA	291	B	69.0	393
KEAR	SAN FRANCISCO	CA	295	B	80.0	305
KBRG	SAN JOSE	CA	262	B	15.0	786
KZOZ	SAN LUIS OBISPO	CA	227	B	23.0	472
KMGQ	SANTA BARBARA	CA	248	B	16.0	890
KTYD	SANTA BARBARA	CA	260	B	34.0	390
KRUZ	SANTA BARBARA	CA	277	B	105.0	905
KSTN-F	STOCKTON	CA	297	B	8.0	491
KHAY	VENTURA	CA	264	B	39.0	369
WHTS	ROCK ISLAND	IL	255	B	39.0	274
WTTS	BLOOMINGTON	IN	222	B	37.0	332
WFBQ	INDIANAPOLIS	IN	234	B	58.0	245
WIOG	BAY CITY	MI	273	B	86.0	244
WOMC	DETROIT	MI	282	B	190.0	110
WBCT	GRAND RAPIDS	MI	229	B	320.0	238
WVGR	GRAND RAPIDS	MI	281	B	108.0	183
WOOD-F	GRAND RAPIDS	MI	289	B	265.0	247
WBUF	BUFFALO	NY	225	B	91.0	177
WNED-F	BUFFALO	NY	233	B	105.0	216
WDCX	BUFFALO	NY	258	B	110.0	195
WTSS	BUFFALO	NY	273	B	110.0	355
WPIG	OLEAN	NY	239	B	43.0	226
WNTQ	SYRACUSE	NY	226	B	97.0	201
WYYY	SYRACUSE	NY	233	B	100.0	198
WFRG-F	UTICA	NY	282	B	100.0	151
WMJI	CLEVELAND	OH	289	B	16.0	344
WNCI	COLUMBUS	OH	250	B	175.0	171
WHKO	DAYTON	OH	256	B	50.0	325
WFGY	ALTOONA	PA	251	B	30.0	287
WKYE	JOHNSTOWN	PA	238	B	57.0	323

GRANDFATHERED SUPERPOWERED FM EXCEEDING 10% OF CLASS CONTOUR DISTANCE

Call Sign	City	State	Channel	Clas	ERP	HAAT
WLTJ	PITTSBURGH	PA	225	B	47.0	271
WWSW-F	PITTSBURGH	PA	233	B	50.0	247
WDVE	PITTSBURGH	PA	273	B	55.0	250
WKSB	WILLIAMSPORT	PA	274	B	53.0	387
WVKL	NORFOLK	VA	239	B	40.0	268
WRVQ	RICHMOND	VA	233	B	200.0	107
WTVR-F	RICHMOND	VA	251	B	50.0	256
WINC-F	WINCHESTER	VA	223	B	22.0	434
WOLX-F	BARABOO	WI	235	B	37.0	396
WJLS-F	BECKLEY	WV	258	B	34.0	320

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D A B S u b c o m m i t t e e

EVALUATION OF THE IBIQUITY DIGITAL CORPORATION IBOC SYSTEM

Part 1 – FM IBOC

Report from the
Evaluation Working Group
Dr. H. Donald Messer, Chairman

(as adopted by the Subcommittee on November 29, 2001)

Sponsored by the Consumer Electronics Association and the National Association of Broadcasters

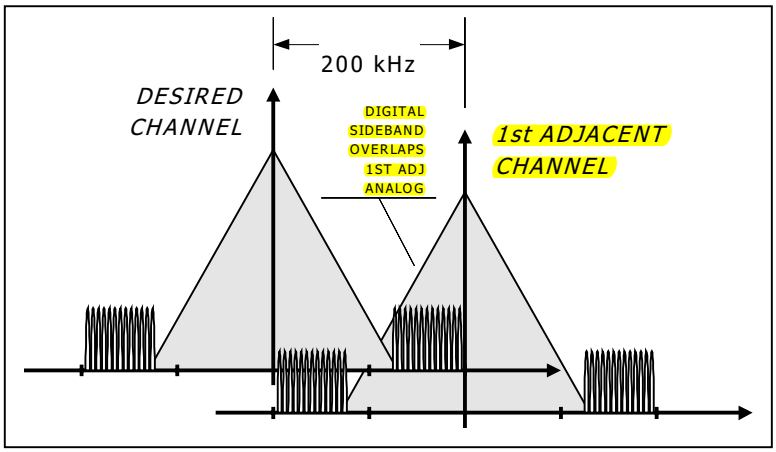


Figure 2. Illustration of potential interference to/from 1st-adjacent analog signals by FM IBOC digital sidebands

- Proximity of digital sidebands to 2nd-adjacent channel signals: the FM IBOC system design allows for approximately 4 kHz of "guard band" between 2nd-adjacent IBOC digital sidebands (Figure 3). Because this relatively close proximity could have an impact on performance, the NRSC test procedures include tests for characterizing performance with 2nd-adjacent interference, including dual 2nd-adjacent channel interferers with power levels up to 40 dB greater than the desired signal power (since FCC rules allow a 2nd-adjacent signal to be 40 dB stronger than the desired signal at the desired signal's protected contour).

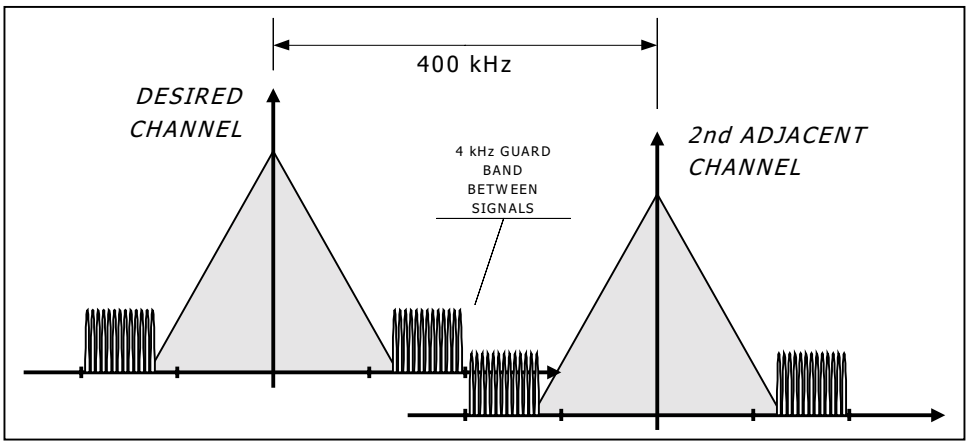


Figure 3. Illustration of potential interference between 2nd-adjacent FM IBOC signals

- Blend-to-analog: the iBiquity FM IBOC system simulcasts a radio station's main channel audio signal using the analog FM carrier and IBOC digital sidebands, and under certain circumstances, the IBOC receiver will "blend" back and forth between these two signals. Consequently, depending upon the reception environment, the listener will either hear digital audio (transported over the IBOC digital sidebands) or analog audio (delivered on the FM-modulated analog carrier), with the digital audio being the primary condition.

  The two main circumstances under which an IBOC receiver reverts to analog audio output are during acquisition i.e. when a radio station is first tuned in (an IBOC receiver acquires the analog signal in

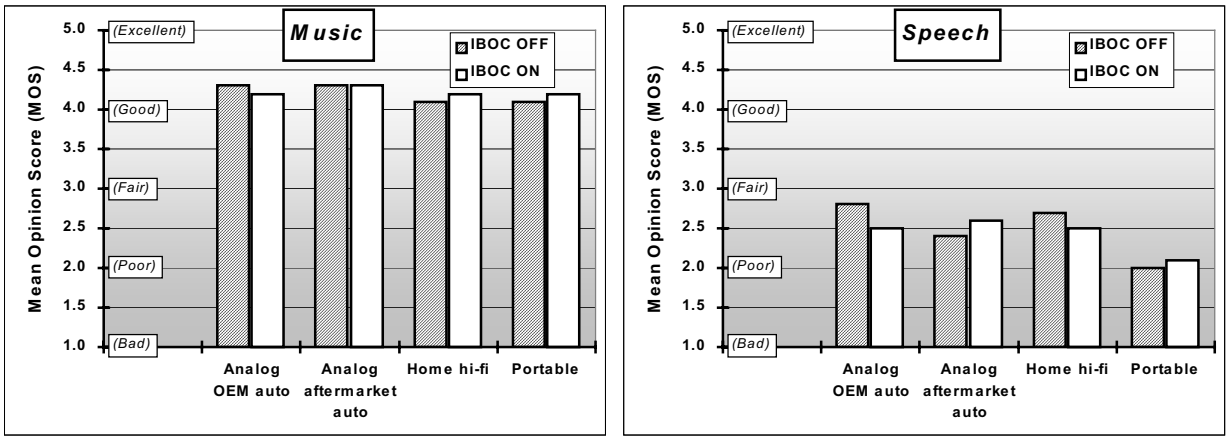


Figure 9. Host compatibility – subjective evaluation results of audio recordings obtained in the field

As in Figure 7 above, these figures present subjective evaluation results obtained on field test recordings of the main channel audio signal. For each figure, results are presented for some or all of the analog receivers used in NRSC testing. For each set of test parameters (e.g., program type, amount of interference) note how the receivers perform differently from one another under identical test conditions, illustrating one reason why it was important for the NRSC to carefully select the analog receivers (as discussed in Section 3.4 above). In
Figure 9, it is also interesting to note that the perceived audio quality, whether or not the IBOC sidebands are present, is highly dependent upon the type of programming being listened to. Specifically, "music" programming rated much higher (in the "good" range) than did "speech" programming (in the "poor" to "fair" range), under similar conditions. Overall, the small differences between "IBOC on" and "IBOC off" in Figure 9 indicate that the impact of the IBOC digital sidebands on the host analog signal is slight.

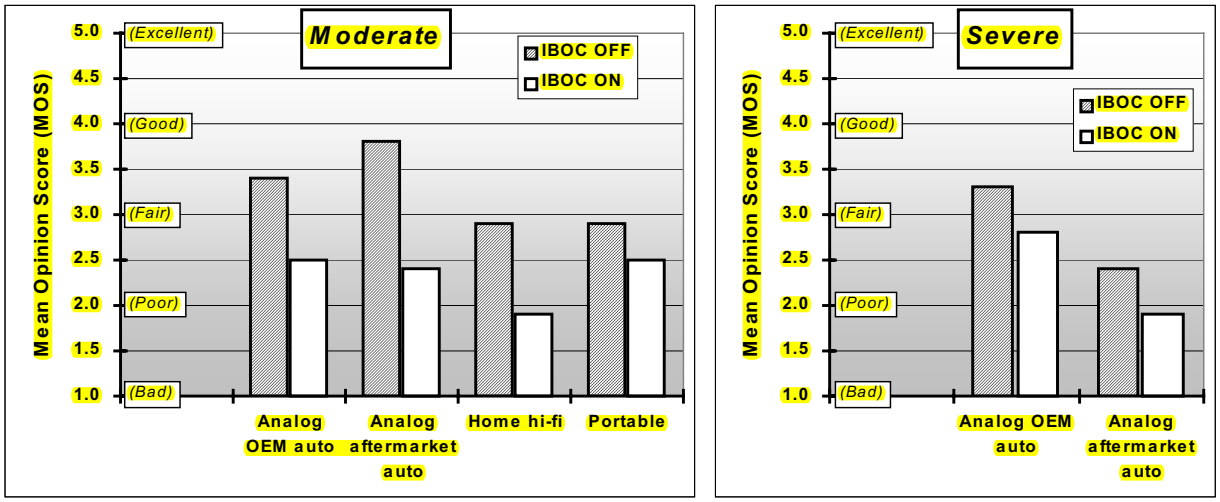


Figure 10. 1st-adjacent compatibility - subjective evaluation results of audio recordings obtained in the field (speech programming)
Moderate: +16 to +6 dB D/U
Severe: +6 to –9 dB D/U

The results shown in Figure 10 serve to illustrate one of the greatest compatibility challenges facing FM IBOC, operation with 1st-adjacent channel interference (discussed in greater detail below in Section 4.12.2), and were obtained in the presence of moderate (between +16 and +6 dB D/U) and severe (between +6 and –9 dB D/U) 1st-adjacent channel interference. These results indicate that under certain circumstances, for certain radios, the presence of the IBOC digital sidebands will have a noticeable effect on analog receiver audio quality. For example, the audio quality of the analog aftermarket auto radio, under moderate interference conditions, is reduced from the "good" range (with no IBOC present) to the "poor" range (with the IBOC digital sidebands present on a 1st-adjacent channel interferer).

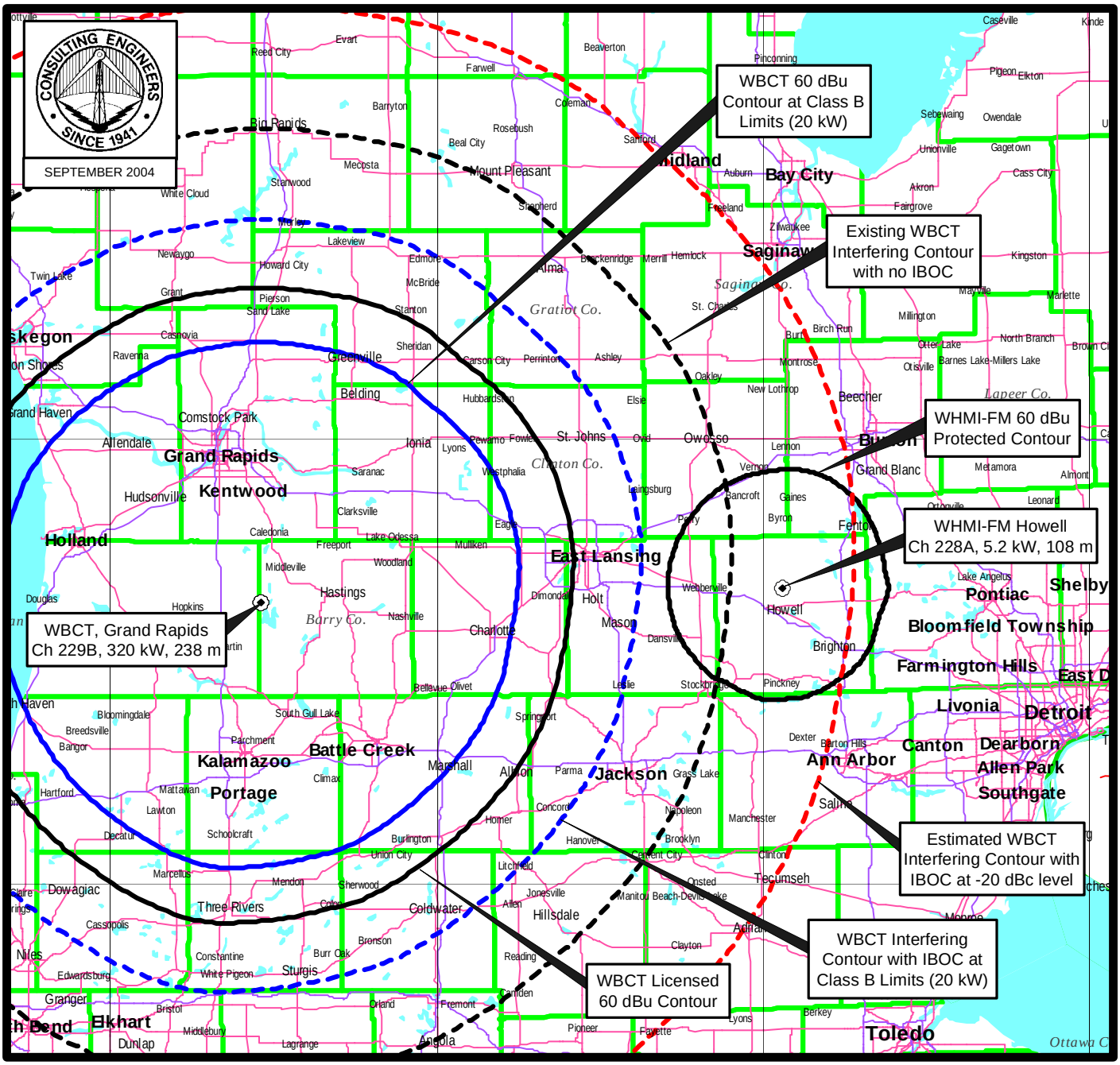
By comparing the difference between the "IBOC off" and "IBOC on" performance for the analog OEM auto radio and the analog aftermarket auto radio shown in Figure 10, for the moderate and severe cases, one of the performance behaviors of analog radios which affects compatibility is highlighted—as the interference level increases, the impact of the IBOC digital sidebands on analog receiver performance becomes less noticeable. Specifically, notice how the difference between IBOC on and IBOC off for the analog aftermarket auto radio (in terms of MOS) is about 1.5 in the moderate case, but only about 0.5 for the severe case, a significant reduction.

This last point, that the amount of interference has a bearing on compatibility, has important ramifications for laboratory testing, since one important interference signal which exists in all radio reception environments, that of RF "background noise," is not normally present when co- and adjacent-channel laboratory tests are performed. Because of this, the NRSC decided to add a background noise component to the RF signals under test during compatibility testing, so that the results of subsequent subjective evaluation would be more realistic. The actual amount of RF white noise added, corresponding to 30,000K, was based on studies done by iBiquity.[18] Lab measurements were also made with no added noise as a "sanity check," providing a baseline for comparison in case the results with the artificial noise added turned out to be very different than the real world results obtained in the field. As was expected, the 30,000K results did not turn out to be very different from the field results.

4.3 Evaluation criteria

The EWG utilized 10 criteria for evaluating the data contained in the FM IBOC Test Data Report. Each criterion falls into one of the (previously mentioned) two general categories of results: "digital performance," which applies to performance of the IBOC digital signal, and "analog compatibility," which addresses the impact of the IBOC signal on reception with existing analog receivers. Table 9 lists the evaluation criteria according to category; refer to Appendix E for a detailed description of each criterion, and to Appendix F for a matrix that illustrates which tests (contained in the test procedures) have a bearing upon which criteria.

[18] A summary of these studies was prepared for the NRSC by iBiquity - see "NRSC Noise Report," November 2001.



PREDICTED COVERAGE CONTOURS

RADIO STATION WHMI-FM
HOWELL, MICHIGAN

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

May 10, 2004

To the editor:

I would like to point out a rarely discussed issue that can and will affect many FM stations as we transition to the world of digital radio – increased interference from grandfathered superpowered stations ("GSSs") that operate with facilities that in many cases greatly exceed class limits. Many of us operate stations on frequencies that are co-channel and adjacent-channel to GSSs, and even though fully-spaced, we are subject to constant interference from them – on good days it's bad, and on bad days it's worse. Many stations have difficulties serving their local communities due to interference from GSSs that put potent signals into areas that couldn't remotely be described as part of their markets.

Many GSSs were licensed by the FCC from the late '40s through the early '60s, prior to the class limit and channel separation allocation system that eventually evolved out of a better understanding of VHF propagation and interference. Since that time, new allocations have been based on class limits, and new authorizations have not exceeded those limits. In fact, most previously authorized GSSs have reduced their facilities to class limits or below. Today, very few GSSs remain, but those that do cause an inordinate amount of interference to their neighbors on the FM band. I will use my station as an example. WHMI is a 5.2 kw/354' Class A operating on a first adjacent channel to a Class B operating with 320 kw/780' – a full 12 db above class limits! The required spacing between Class A and Class B stations is 113 km. Although our actual separation is 131 km, WHMI receives significant predicted (FCC contour or Longley-Rice) interference and even greater actual interference. The interference during periods of ducting or temperature inversion can be so severe that it can be heard in our community of license just 3½ miles from our tower!

Because GSSs' analog facilities are grandfathered, the rest of us have had to quietly tolerate these excessively loud neighbors on the dial – until now. The FCC's current FNPRM (Further Notice of Proposed Rulemaking) on IBOC digital radio gives us the opportunity to comment on the new digital power levels and encourage the Commission to avoid perpetuating the mistakes of the past, however well-intentioned, as we transition to digital broadcasting. We have an opportunity to have <u>all</u> FM stations operating at or below class limits with their digital signals. Not only would interference be greatly reduced in the all-digital future, but there would be an immediate benefit in reduced interference to analog co-channel and adjacent-channel stations operating in the shadow of GSSs that have begun transmitting digital signals. Again, I will use WHMI as an example. Under current practice, stations are authorized to operate with average digital power 20 db below their analog power (which is $1/100^{th}$ of analog power). WHMI's first-adjacent Class B, which runs 320 kw analog power could begin operating at any time with 3.2 kw digital, with a significant portion of that signal in the Class B's adjacent channels, including WHMI's channel. If this station were to operate digitally at class limits, its digital power would be 12 db lower or 200 watts. This power level, although

adding somewhat to the existing analog interference, would be a far cry from the interference from a 3.2 kw signal, and a reasonable price to pay to get to an all-digital future where we all operate at or below class limits and interference of this sort ceases to be an issue.

My company, The Livingston Radio Company, will be submitting comments to the Commission, and I have enlisted the support of several stations and groups here in Michigan. Stations or groups that support our efforts and wish to join us, please contact me.

Greg Jablonski
President & Gen. Mgr.
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